

**CITY OF EL PASO, TEXAS  
AGENDA ITEM  
DEPARTMENT HEAD'S SUMMARY FORM**

**DEPARTMENT:** Engineering and Construction Management

**AGENDA DATE:** May 22, 2012

**CONTACT PERSON NAME AND PHONE NUMBER:** R. Alan Shubert, P.E., City Engineer (X4423)

**DISTRICT(S) AFFECTED:** all

**SUBJECT:**

That the City Manager be authorized to sign the First Amendment to the Agreement for Professional Services by and between the City of El Paso and Federal Engineering, Inc., a Maryland Corporation, for a project known as "El Paso Statistical Area Communications System" to limit the amount of travel and other expenses and to add the additional services for the consulting and technical support during procurement and implementation of a new 800 MHz ASTRO 25 radio system and further evaluation of other systems, in the amount of Two Hundred Fifty Eight Thousand Eight Hundred Dollars and 55/00 (\$258,800.55) thereby extending the contract amount from Two Hundred Thousand Dollars and No/00 (\$200,000) to Four Hundred Fifty Eight Thousand Eight Hundred Dollars and 55/00 (\$458,800.55).

**BACKGROUND / DISCUSSION:**

Under the original agreement Federal Engineering provided an evaluation of the existing public safety communication system prior to the installation of a Project 25 (P25) compliant public communication system. P25 is an industry standard for digital mobile radio systems. This amendment will continue implementation of the agreed upon recommendations and provide design, procurement and installation and support services in the following areas: 1) automated dispatch and fire station alerting system to provide dispatchers with an advanced application to control emergency voice and data communications to the city's fire and EMS departments; 2) sheriff's office public safety VHF radio system; 3) general public safety radio system on-call consulting support; 4) radio system procurement and implementation consulting support.

**PRIOR COUNCIL ACTION:**

August 9, 2011 Agreement for Professional Services with Federal Engineering, Inc.

**AMOUNT AND SOURCE OF FUNDING:**

Homeland Security Grant Program, Urban Area Security Initiative (UASI) 2010 Grant

**BOARD / COMMISSION ACTION:**

N/A

\*\*\*\*\*REQUIRED AUTHORIZATION\*\*\*\*\*

**DEPARTMENT HEAD:**



(If Department Head Summary Form is initiated by Purchasing, client department should sign also)  
Information copy to appropriate Deputy City Manager

## RESOLUTION

### BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF EL PASO:

That the City Manager be authorized to sign the First Amendment to the Agreement for Professional Services by and between the City of El Paso and Federal Engineering, Inc., a Maryland Corporation, for a project known as "El Paso Statistical Area Communications System" to limit the amount of travel and other expenses and to add additional services for consulting and technical support during procurement and implementation of a new 800 MHz ASTRO 25 radio system and further evaluation of other systems, in the amount of Two Hundred Fifty Eight Thousand Eight Hundred Dollars and 55/100 (\$258,800.55), thereby extending the contract amount from Two Hundred Thousand Dollars and No/100 (\$200,000) to Four Hundred Fifty Eight Thousand Eight Hundred Dollars and 55/100 (\$458,800.55).

ADOPTED THIS \_\_\_\_\_ DAY OF \_\_\_\_\_ 2012.

CITY OF EL PASO:

\_\_\_\_\_  
John F. Cook,  
Mayor

ATTEST:

\_\_\_\_\_  
Richarda Duffy Momsen,  
City Clerk

APPROVED AS TO FORM:

\_\_\_\_\_  
Cynthia Osborn  
Assistant City Attorney

APPROVED AS TO CONTENT

\_\_\_\_\_  
for R. Alan Shubert, P.E.  
City Engineer

THE STATE OF TEXAS )  
 )  
COUNTY OF EL PASO )

FIRST AMENDMENT  
AGREEMENT  
FOR PROFESSIONAL SERVICES

This First Amendment to that certain Agreement for Professional Services is made this \_\_\_\_\_ day of \_\_\_\_\_, 2012, by and between the City of El Paso, a Texas municipal corporation (the "**Owner**"), and Federal Engineering, Inc., a Maryland Corporation (the "**Consultant**").

**WHEREAS**, on August 9, 2011 the Owner entered into an Agreement for Professional Services (the "**Agreement**") with the Consultant for a Project known as "**EL PASO STATISTICAL AREA COMMUNICATIONS SYSTEM**" (the "**Project**") for the evaluation of the City's existing and proposed Motorola systems and provision of recommendations for future phases of the El Paso Metropolitan Statistical Area Communications System ("EPMSACS"); and

**WHEREAS**, the Agreement was for an amount not to exceed \$200,000.00 plus travel and other expenses to be reimbursed at cost; and

**WHEREAS**, the parties hereto desire to amend the Agreement to limit the Consultant's travel and other expenses to \$11,540.55, thereby extending the contract amount from \$200,000.00 to \$211,540.55; and

**WHEREAS**, the Agreement may be amended under the provisions of Section 3.2 to add additional services; and

**WHEREAS**, the parties hereto desire to amend the Agreement to add additional services for radio system consulting support during the procurement and implementation phases of the radio system, on-call technical support, evaluation of an automated dispatch and fire station alerting system and evaluation of the Sheriff Department's existing system, thereby extending the contract amount from \$211,540.55 to \$458,800.55.

**NOW THEREFORE**, in consideration of the mutual promises set forth in this Amendment and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties hereto agree as follows:

1. **Reimbursable expenses.**

3.1 PAYMENT TO CONSULTANT, is hereby amended to read as follows:

**3.1 PAYMENT TO CONSULTANT.** The owner shall pay to the Consultant an amount not to exceed TWO HUNDRED THOUSAND 00/100 DOLLARS (\$200,000.00) for all basic services performed pursuant to this Agreement, as set forth in the fee schedule attached hereto as **Attachment "A and B"**, or as otherwise agreed to by the parties in a written amendment to this Agreement. In addition, the Consultant shall be reimbursed for actual travel and other expenses incurred relating to its performance under this Agreement in an amount not to exceed Eleven Thousand Five Hundred Forty and 55/100 (\$11,540.55).

2. **Scope of Services.** The Owner hereby authorizes the Consultant to continue to perform the Services as described in Attachment "A" of the original agreement as well as perform the additional services as further described in Attachment "A" to this First Amendment.
3. **Payments to Consultant.** Payments to the Consultant shall be made pursuant to the schedule enumerated within Attachment "C" of the original agreement. Payment to the Consultant for the expenses and additional services the subject of this **First Amendment shall not exceed** Two Hundred Fifty Eight Thousand Eight Hundred Dollars and 55/00 (**\$258,800.55**) for a **total contract amount not to exceed** Four Hundred Fifty Eight Thousand Eight Hundred Dollars and 55/00 (**\$458,800.55**).
4. **Time of Completion.** The additional services the subject of this First Amendment shall be completed within the project schedule set forth in the Scope of Services described in Attachment "A" to this First Amendment, following the Owner's written Notice to Proceed to the Consultant.
5. **Terms and Conditions.** All terms and conditions of the Agreement and all subsequent Amendments thereto, except as herein revised, shall remain in full force and effect.

WITNESS THE FOLLOWING SIGNATURES AND SEALS:

THE CITY OF EL PASO

\_\_\_\_\_  
Joyce A. Wilson  
City Manager

CONSULTANT  
FEDERAL ENGINEERING, INC.

By: \_\_\_\_\_  
By: Ronald F. Bosco,  
Title: President

APPROVED AS TO FORM:

\_\_\_\_\_  
Cynthia Osborn  
Assistant City Attorney

APPROVED AS TO CONTENT:

\_\_\_\_\_  
for R. Alan Shubert, P.E.  
City Engineer

(Acknowledgements begin on following page)

**ACKNOWLEDGEMENTS**

This instrument was acknowledged before me on this \_\_\_\_\_ day of \_\_\_\_\_, 2012,  
by **Joyce A. Wilson**, as **City Manager** of the **City of El Paso, Texas**.

\_\_\_\_\_  
**Notary Public, State of Texas**

**My commission expires:**

\_\_\_\_\_

**THE STATE OF TEXAS   §**  
                                  **§**  
**COUNTY OF EL PASO   §**

This instrument was acknowledged before me on this \_\_\_\_\_ day of \_\_\_\_\_, 2012,  
by, **Ronald F. Bosco** as **President** of **Federal Engineering, Inc.**

\_\_\_\_\_  
**Notary Public, State of Texas**

**My commission expires:**

\_\_\_\_\_

Attachment A



"Unleashing the Power of Technology"

Federal  
Engineering®

**Federal Engineering, Inc.**

10600 Arrowhead Drive  
Fairfax, VA 22030  
703-359-8200

May 7, 2012

Victor Garzon  
Project Manager  
City of El Paso - Engineering Department  
2 Civic Center Plaza 4th Floor  
El Paso, Texas 79901

Reference: Revised Statements of Work

Dear Mr. Garzon,

In response to your request, **FE** is providing revised Statement of Work documents that detail the project costs for the following:

1. Project EL-PSMR-IMPL Radio System Procurement and Implementation Support:
  - Procurement phase fixed cost of \$47,500
  - Implementation phase time and material cost not to exceed \$75,000
  - Reimbursable costs not to exceed \$16,500
2. Project EL-PSMR-VHF EL Paso County Sheriff's Office Public Safety Mobile Radio System Evaluation:
  - Fixed cost of \$60,560
  - Reimbursable costs not to exceed \$11,000
  - Removed optional tasks.
3. Project EL-PSMR-FSA Automated Dispatch and Fire Station Alerting System Evaluation:
  - Fixed cost of \$11,200
  - Reimbursable costs not to exceed \$5,500
4. Project EL-PSMR-OTS Radio System On-Call Technical Support:
  - Time and material cost not to exceed \$20,000

Sincerely,

*Ronald F. Bosco*

Ronald F. Bosco  
President



"Unleashing the Power of Technology"

Federal  
Engineering®

**Federal Engineering, Inc.**

10600 Arrowhead Drive  
Fairfax, VA 22030  
703-359-8200

**STATEMENT OF WORK (SOW)**

Issued: April 11, 2012

Revised: May 7, 2012

**AMENDMENT TO CITY OF EL PASO, TX**

Contract for

El Paso Metropolitan Statistical Area Communications System

Dated: August 9, 2011

**PROJECT EL-PSMR-IMPL  
CITY OF EL PASO, TEXAS  
RADIO SYSTEM PROCUREMENT AND  
IMPLEMENTATION SUPPORT**

**1.0 INTRODUCTION AND ISSUES**

Federal Engineering, Inc. (**FE**) recently completed an evaluation of the City of El Paso's (City) existing and proposed Motorola systems and provided recommendations for future phases of the El Paso Metropolitan Statistical Area Communications System (EPMSACS). **FE** performed an assessment of stakeholder needs, analyzed the City's FCC licenses, reviewed existing system documentation, and performed radio coverage studies to determine the optimal voice and data communications approach.

**FE** developed a six-site, 15-channel 800 MHz ASTRO 25 radio system alternative that also supports P25 VHF radio communications. The high-level conceptual design provides cross band operation so that VHF radio users such as the El Paso County Sheriff's Office (SO) can communicate with 800 MHz P25 radio users on the system.

The City approved the following relevant recommendations provided by **FE** for the City to achieve their communications system objectives:

1. Relocate the P25 core master site from the City Hall basement to the 2nd floor of the Regional 911 Dispatch Center. Other locations were considered but the Regional 911 Dispatch Center is preferred as it is not prone to any environmental issues and is convenient to access for maintenance purposes.
2. Upgrade the existing microwave backhaul to an all Internet Protocol (IP) backbone that provides connectivity for Ethernet traffic to the conceptual six-site 800 MHz ASTRO 25 simulcast system.

FE will review and

3. Expand the existing 800 MHz P25 single-site at KFOX from the 6-channel system into a 15-channel simulcast system. KFOX may require a modification to the existing leasing agreement to permit this expansion.
4. Add new 800 MHz P25 15-channel simulcast sites at the City Hall, Three Hills, Vinton, Dyer, and Department of Public Safety (DPS) locations. Some sites may require leasing agreements.
5. Replace the 60 existing Gold Elite consoles with MCC7500 consoles.
6. Strongly consider vendor-provided lease or lease-purchase pricing to reduce upfront capital costs and guard against technology obsolescence and increasing maintenance costs over the life of the system.
- FE will review and
7. Implement a P25 IV&D solution as a backup for the commercial carrier wireless data to support minimal data capabilities in the event the commercial system becomes unavailable.

This Statement of Work (SOW) outlines the tasks for **FE** to provide radio system consulting support during the procurement and implementation phases.

## **2.0 TASKS TO BE PERFORMED**

### **2.1 Task 1: System Procurement Support**

**FE** will coordinate and conduct a Kickoff Meeting to discuss procurement goals, objectives, tasks, schedule, and deliverables with the City.

#### **2.1.1 Backhaul Network Evaluation**

**FE** will review and evaluate the microwave and fiber backhaul network design to assure that it meets the backhaul requirements for the City's 800 MHz network. Any shortcomings will be brought to the attention of the City.

#### **2.1.2 Technical Specification Development**

**FE** will use the *City of El Paso Public Safety Mobile Radio System Evaluation Assessment Report* as a basis to develop technical specifications for the vendor. These specifications will be based upon the City-approved high level design and recommendations in the *Assessment Report*. Throughout design review evaluation, implementation supervision, and testing activities, **FE** continually checks the vendor's work against these approved specifications.

**FE** is a strong proponent of using a "functional requirements specifications" approach to systems planning and procurement. We have found that this approach minimizes costs

FE will review and



during the planning phase of the program, reduces the resultant overall system cost, and keeps the burden of system detailed design and performance risk on the equipment vendor where it belongs.

**FE** will perform the following activities to support the procurement of the City's radio system:

- 1: ~~Generate a City of El Paso Public Safety Mobile Radio System Technical Specification~~ based on the final *Assessment Report*. The Technical Specification will define requirements for:

- Functionality of the system
- Performance (coverage, capacity, etc.)
- Spectrum
- Preferred site locations
- Infrastructure/site equipment
- Site shelters and towers
- Backhaul interfaces
- Dispatch
- Paging
- Network management
- ~~Subscribers~~
- Training
- Warranty
- Maintenance/service
- System implementation, test, and acceptance
- Reviews and documentation
- Redundancy and survivability

2. Update the technical specifications based on City review and comment and submit a final version to be used by the radio system vendor.

### **2.1.3 Procurement Process Support**

**FE** will provide the following procurement process support:

1. ~~Conduct teleconferenced meetings~~ as required with the City to develop a set of evaluation criteria and an evaluation process.
2. Attend one pre-proposal submission conference with the City and vendor; participate during the conference as a technical advisor to the City and answer questions as needed.

3. Participate in site walks with vendor over a 2-day time period to answer questions and act as technical advisor to the City.
4. Assist the City with their response to vendor questions and provide clarifications to the City throughout the proposal solicitation process.
5. Review vendor proposals, participate in up to two teleconferenced evaluation meetings and one on-site vendor presentation, and assist the City with proposal scoring.
6. Assist the City with up to 40 hours of contract negotiations and support for technical issues that may arise during contract negotiations.

## **2.2 Task 2: Implementation Project Management**

*FE* implementation support services will take the project from the initiation, planning, and design-review phases through installation, testing, and final cutover. *FE* participation will assure that proper planning takes place before major commitments are made and will provide City management with the visibility necessary to eliminate surprises and create a proactive project management environment. We will verify that the radio vendor is compliant with the contract with regard to City-approved technical specifications, schedule, and cost milestones.

Upon vendor contract award, *FE* will provide an implementation oversight schedule that aligns with the vendor's implementation schedule.

**General Implementation Project Management Tasks**—The following activities are typical of this type of project. *FE* will coordinate with the City to determine which of these tasks will be necessary based upon the radio system vendor's implementation tasks and schedule, and the City's requirements.

1. Coordinate and conduct an Implementation Kickoff Meeting to discuss project goals, objectives, tasks, schedule, and deliverables with the City and the selected vendor.
2. Coordinate and conduct bi-weekly project status teleconferences.
3. Coordinate and conduct monthly on-site project status meetings.
4. Participate in other project meetings as required.
5. Assist in the development of project execution processes as they relate to milestone processing, effective communications across teams, roles and responsibilities, and documentation formats.

6. Review frequency plans and license applications as required.
7. Review and verify system fleet mapping.
8. Maintain an independent punch list of items during implementation activities including issue, responsible party, target date for completion, actual date of completion, and resolution.
9. Assist the City in resolving vendor implementation issues, oversee the vendor's punch list development and resolution process, identify any vendor performance issues, and make appropriate recommendations to the City.

**Detailed System Design and Test Plan (ATP) Reviews—***FE* recommends that the City require the system vendor to conduct a contract/preliminary design review (PDR) and a final design review (FDR).

1. *FE* will review vendor PDR documents and attend the PDR presentation by the vendor. The review typically includes:
  - Project schedule
  - Individual site designs
  - Frequency plan
  - Detailed system design
  - Updated equipment list (by site)
  - Updated system drawings
  - Factory acceptance test plans and procedures (FATP)
  - Site testing plans and procedures
  - Radio coverage methodologies and coverage acceptance test plan (CATP)
  - Cutover plans
  - System acceptance test plans
  - Training plans
  - List of manuals and documentation
  - Final CDR package
  - Decommissioning process for old equipment
  - City responsibilities as defined by vendor
2. During the PDR, *FE* will identify areas of design and test plan deficiency, document in the punch list, and provide recommendations to correct the deficiencies. *FE* will be available to assist the City with change order negotiations, if any, resulting from the PDR.

3. **FE** will review Final Design Review (FDR) documents and attend the FDR presentation to ensure PDR punch list items are adequately addressed.

4. **FE** will make a recommendation to the City for the vendor to move on to the next phase.

**Factory Testing and Equipment Delivery**—**FE** will act as the City's representative for factory testing and equipment delivery inventory tasks.

1. **FE** will attend factory staging of the system at the vendor's facility acting as the City's technical advisor.

2. **FE** will conduct an independent inventory of equipment upon delivery to each site to verify the City receives the contract compliant equipment.

**Installation Inspections**—**FE** will inspect each site and the dispatch center to verify if the equipment installations are in accordance with the specifications, meet good workmanship practices, and comply with the equipment installation standards. For the following inspection-related activities as identified in the vendor's schedule, **FE** will typically:

1. Review shelter preparation activities to verify they have been performed correctly and in time for installations.

2. Verify that the required facility improvements have been made including internal and external grounding.

3. Inspect civil installations.

4. Observe and inspect site equipment installation including antenna, transmission line, radio system infrastructure equipment, and microwave equipment.

5. Witness and verify the results of the vendor's final site tests.

6. Review each site's punch list to ensure it includes deficiencies noted during the site preparation and test verification. Verify that corrective actions are taken before any punch list items are removed.

**Coverage and Field Testing**—**FE** will participate in the following testing activities as identified in the vendor's schedule:

1. Witness coverage tests as the City's representative. **FE** will accompany the system vendor for the coverage testing to verify methodology and data

collection. **FE** and the City will mutually define the coverage testing area for which **FE** will accompany the vendor.

2. Audit coverage test results.
3. Attend final system testing, audit and verify test results.
4. Provide a memo to the City that identifies coverage and system verification results and any recommendations for the vendor to correct deficiencies in the test documentation. **FE** will review the punch lists and participate in retesting to confirm that the deficiencies have been corrected.

**System Acceptance and Cutover**—**FE** typically performs the following system acceptance and cutover oversight services:

1. Prior to the system acceptance process, **FE** will revisit the final system acceptance plan and vendor cutover plan and identify any deficiencies or areas for improvement to the City based on modifications during implementation.
2. **FE** will assist the City with negotiating final changes to the system acceptance and/or cutover plans with the vendor.
3. Final system acceptance will take place after the coverage and system field tests have been successfully completed by the vendor and the fully functional system has been delivered. **FE** will witness system acceptance testing activities, verify the test results, and make any necessary recommendations for the vendor to correct deficiencies noted during the testing.
4. Upon completion of system acceptance testing and correction of any deficiencies, including punch list and documentation items, **FE** will make recommendations to the City regarding acceptance of the system and system cutover.
5. **FE** will witness the cutover and assist the City where needed.

**Documentation and Training**—The system vendor will be required to deliver system documentation and manuals to the City.

1. **FE** will verify the delivery of manuals identified in the contract and during the FDR.

2. **FE** will verify that corrections have been made to the final manuals by the vendor, if required by the contract, after final system acceptance testing and discrepancies are corrected.
3. **FE** will verify as-built drawings represent the system and the vendor has incorporated all changes that may have been made during implementation.
4. **FE** will review training plans and curriculum and make recommendations for modifications as necessary to the City.

### 3.0 DELIVERABLES/MILESTONES

**FE** and the City will discuss a mutually acceptable date for project initiation. **FE** will create a schedule for system procurement support once **FE** and the City finalize procurement mechanisms. **FE** will create a schedule for implementation support after the system vendor has provided a final schedule for system implementation.

The results of **FE** activities, reviews, and verifications will be documented in monthly status reports or in separate reports as directed by the City.

### 4.0 STAFFING/ORGANIZATION

**FE** proposes Mr. Rajit Jhaver as the Project Manager. He will draw upon the knowledge from managing the City of El Paso's EPMSACS assessment. He will also draw upon the project expertise and skills of other **FE** public safety radio consulting professionals during the course of the project as needed.

### 5.0 COST

Services defined in *Section 2.1 - System Procurement Support* will be performed on a fixed price basis in accordance with the labor pricing called out in the following table:

<b>City of El Paso Procurement Support Fixed Prices (Labor)</b>	
<b>Task</b>	<b>Price</b>
2.1.1 Backhaul Network Evaluation	\$ 10,160
2.1.2 Technical Specification Development	\$ 10,440
2.1.3 Procurement Process Support	\$ 26,900
<b>Total</b>	<b>\$ 47,500</b>

Services defined in *Section 2.2 – Implementation Project Management* will be billed on a time and materials basis not to exceed \$75,000. Any charges beyond this amount will require the City Council approval of additional funds. The labor rates for these services are documented in the fee schedule.

Reimbursable expenses not exceed \$16,500 including travel for **FE** personnel will be reimbursed by the City at cost. Per Diem charges will be in accordance with the effective U.S. General Services Administration rate schedule.

Invoices will be submitted monthly with a breakdown of labor, travel, and per diem charges.

## **6.0 ASSUMPTIONS AND CONSTRAINTS**

1. Federal Engineering, Inc. will perform tasks as called out in Section 2 (excluding optional tasks or services). The deletion of a task or significant change in scope of one or more tasks may affect the overall price. Any optional or additional tasking will be authorized by mutual agreement of the City and **FE** and this SOW will be amended accordingly.
2. This SOW assumes that the City's project manager will schedule meetings, provide meeting facilities, notify attendees, and arrange for on-site visits.
3. **FE's** ability to fulfill this project depends, in part, on the willingness and ability of the City and/or other participating jurisdictions and agencies, equipment vendors, service providers, third parties, and others to provide information in a timely manner, and upon the accuracy of the information as supplied. The accuracy of input data, whether provided in electronic or hard copy form, and the recommendations, actions, system designs, procurements, and bidder actions resulting therefrom cannot, therefore, be warranted by **FE** nor can the performance, suitability, or reliability of said systems be warranted by **FE**.
4. Delays to the program schedule due to actions or lack of actions on the part of the City and/or other participating jurisdictions and agencies, equipment vendors, service providers, third parties, and others, as well as vendor protests and other procurement related actions, may result in additional costs and will be brought to the attention of the City project manager in a timely manner.

---

Submitted by *FE*:

Ronald F. Bosco

Ronald F. Bosco, President  
May 7, 2012

Authorization to begin work by:  
**City of El Paso**

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Printed name and title)

\_\_\_\_\_  
(Date)





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**Federal Engineering, Inc.**

10600 Arrowhead Drive  
Fairfax, VA 22030  
703-359-8200

**STATEMENT OF WORK (SOW)**

Issued: March 30, 2012

Revised: May 7, 2012

**AMENDMENT TO CITY OF EL PASO, TX**

Contract for

El Paso Metropolitan Statistical Area Communications System

Dated: August 9, 2011

**PROJECT EL-PSMR-VHF  
CITY OF EL PASO, TEXAS  
EL PASO COUNTY SHERIFF'S OFFICE**

**PUBLIC SAFETY MOBILE RADIO SYSTEM EVALUATION**

**1.0 INTRODUCTION AND ISSUES**

Federal Engineering, Inc. (**FE**) recently completed an evaluation of the City of El Paso's (City) existing and proposed Motorola systems and provided recommendations for future phases of the El Paso Metropolitan Statistical Area Communications System (EPMSACS). **FE** developed a six-site, 15-channel 800 MHz ASTRO 25 radio system alternative that also supports P25 VHF radio communications, as part of the UASI/PSIC funded trunked system. The high-level conceptual design provides cross band operation so that VHF radio users such as the El Paso County Sheriff's Office (SO) can communicate with 800 MHz P25 radio users on the system.

The SO currently maintains a conventional VHF 7-site (one primary repeater, one backup repeater, and 5 receive only) 5-channel system. The Sheriff's Department has requested **FE** to evaluate the existing system, analyze the SO's FCC licenses, and review existing system documentation. **FE** will develop a conceptual design for the P25 VHF layer of the UASI/PSIC funded trunked system.

**2.0 TASKS TO BE PERFORMED**

**2.1 Task 1: Project Kickoff Meeting and Project Planning**

Upon receipt of the formal Notice to Proceed from the SO, **FE** will begin preparations for the project kickoff meeting. We will prepare and present a request for information (RFI) to the SO for relevant available system documentation.

**FE** will conduct a project kickoff meeting with the SO and their designees. This initial meeting will establish a common understanding of the project goals, objectives, and schedule. **FE** will deliver a revised project plan and timetable following this meeting.

This project plan will serve as the guiding document throughout the program. *FE* will collect performance requirements such as mobile, portable, and in-building coverage areas and Delivered Audio Quality (DAQ) level.

Because the success of this project depends upon a strong working relationship between the SO stakeholders and *FE*, keeping all parties informed of salient issues and progress of this project is paramount. *FE* anticipates regular communications with the SO project manager and planning team, providing monthly progress reports to inform the SO of our progress. These reports will include action item tracking, its source, the responsible party for carrying out the action, a target completion date, and the actual completion date.

*FE* will adjust the project schedule as necessary to reflect the nature of the project as it evolves through deliverables, approval processes, and meeting schedules and submit the revised schedule as part of the progress report.

## **2.2 Task 2: Review and Analyze Radio System Documentation and Federal Communications Commission (FCC) Licenses**

*FE* will review and analyze SO-supplied radio system documentation and other existing applicable documentation related to the project effort. *FE* will also research and analyze the status of the SO's FCC licenses.

## **2.3 Task 3: Evaluation of Existing System**

*FE* will leverage Sheriff's Office site and user assessment information collected as part of the City's radio system project for evaluation of the existing system. *FE* will model coverage of the existing Sheriff's Office VHF conventional system as indicated below.

**Existing Coverage Baseline**—*FE* will analyze the coverage of the existing SO system based on information collected to define a system coverage baseline. To analyze the coverage performance, *FE* will use our in-house toolset, *FEPerformancePro*™. This integrated set of tools provides our consultants with state-of-the-art network modeling technology to complete system coverage, capacity, and interference analysis. These tools include:

- *FECoverage*™ – complete coverage analysis tool
- *FEMapper*™ – high-resolution mapping tool
- *FENetwork*™ – reliable network capacity analysis tool
- *FEMitigate*™ – system-wide interference analysis tool (optional)

Using **FECoverage™**, **FE** will evaluate each communications site independently, as well as a site's impact on the entire system. **FE** will produce a mutually agreed upon number of coverage plots for each site (mobile, portable) and composite maps that demonstrate existing coverage and depict major geographical landmarks and the area topography.

**FE** will work with the SO project manager to establish how coverage maps should be presented, including: scale, color schemes, highway/road data, and jurisdictional boundaries. **FEMapper™** provides **FE** with complete control of the presentation of these "made-to-order" maps, and can be color coded as requested.

#### **2.4 Task 4: Conceptual Design**

**FE** will analyze, develop a conceptual design, and develop a rough order of magnitude cost analysis for enhancing the EPMSACS with a countywide VHF overlay that supports the SO requirements for voice and provides VHF interoperability.

**Performance and Backhaul Analysis**—**FE** will use **FECoverage™** to model coverage for the conceptual design using the defined coverage requirements. **FE** will determine if additional sites need to be added to provide adequate coverage and, if necessary, work with the SO to identify locations for candidate sites. **FECoverage™** enables us to "turn on" and "turn off" coverage at the sites to determine the impact on overall coverage within the County.

**FE** will work with the SO project manager to establish how coverage maps should be presented, including: scale, color schemes, highway/road data, and jurisdictional boundaries. **FEMapper™** provides **FE** with complete control of the presentation of these "made-to-order" maps, and can be color coded as requested.

Using **FENetwork™**, **FE** will determine the total number of channels needed to meet future requirements by tailoring subscriber and system characteristics such as required Grade of Service, radio subscriber density in different clutter areas, and the traffic that each subscriber presents to the system. The subscribers are then placed in a defined area and terrain that simulates the county or local agency environment. **FENetwork™** will provide an output that exhibits the following traffic characteristics for the system network under study:

- Number of channels required per site, and
- Number of channels required for the system.

Working in conjunction with **FENetwork™**, we will model traffic throughout an area of interest, providing best-server analysis and loading predictions.

Using **FENetwork™**, **FE** consultants will model microwave backhaul paths, taking into consideration terrain and clutter. **FENetwork™** will graph individual path profiles for each link or provide a representation of the entire backhaul network. **FE** can perform detailed microwave path surveys as an option if required.

**Interoperability Analysis**—**FE** will investigate the feasibility of interoperability with the Hudspeth County, Texas; Doña Ana and Otero Counties, New Mexico; state of Texas agencies; state of New Mexico agencies; City of El Paso police, fire, emergency medical services (EMS); Department of Transportation (DoT); EPWU; Water District; Sun Metro; and federal agencies. We will leverage our previous research for the EPMSACS and will, if necessary, conduct telephone interviews with adjacent counties to collect relevant interoperable information about their systems.

**FE** will consider applicable grant requirements for interoperability as well as any Texas state interoperability initiatives.

**Conceptual Design**—**FE** will develop a high level conceptual design. This will include a basic system infrastructure diagram, backhaul diagram, and a narrative description of the design. The design and accompanying coverage maps will be included in the *El Paso County Sheriff's Office Public Safety Radio Communications Assessment Report*.

**Rough Order of Magnitude Cost Estimates**—**FE** will develop rough order of magnitude (ROM) cost estimates for the conceptual design. **FE** will create conservative high-level budgetary estimates to be used for budgetary planning. **FE** will consider the costs for upgrades or replacement equipment at each site and, if required, estimate the cost for developing new sites (potential lease, acquisition or site use fees shall be provided by the SO).

## **2.5 Task 5: Draft Assessment Report**

**FE** will develop a draft *El Paso County Sheriff's Office Public Safety Radio Communications Assessment Report* containing the findings and results of previous tasks including the existing system analysis, radio system documentation review, and FCC license review. The draft will also contain the conceptual design, coverage maps, and ROM cost estimate.

**FE** will submit an electronic version of the draft report to the SO project manager for review and comment in accordance with the mutually agreed upon project schedule. Following a determined period of time for initial review, at a mutually agreeable time, **FE** will meet with the SO project manager, invited stakeholders, and designated public officials to discuss the draft report so that all parties understand the information being presented in the report and to answer any questions that may arise.

Following this meeting, the SO project manager will compile any written comments and edits into one electronic version of the report using the track changes function of Microsoft Word® and email the edited document to the *FE* project manager.

## **2.6 Task 6: Final Assessment Report and Presentation**

*FE* will update the draft *El Paso Sheriff's Office Public Safety Radio Communications Assessment Report* according to the SO's review and comments and submit a final electronic version of the report in accordance with the mutually agreed upon project schedule.

At a mutually agreeable time, *FE* will present the highlights of the report and the findings to the SO project manager, invited stakeholders, and designated public officials so that all parties understand the information being presented and to answer any questions that may arise.

## **3.0 DELIVERABLES/MILESTONES**

Refer to the attached Project Schedule in Attachment 1. *FE* and the SO will discuss a mutually acceptable date for project initiation and adjust the Attachment 1 schedule accordingly.

## **4.0 STAFFING/ORGANIZATION**

*FE* proposes Mr. Rajit Jhaver as the Project Manager. He will draw upon the knowledge from managing the City of El Paso's EPMSACS assessment. He will also draw upon the project expertise and skills of other *FE* public safety radio consulting professionals during the course of the project as needed.

## **5.0 COST**

The fixed price for direct labor to perform the services in this scope of work is \$60,560. Reimbursable expenses not exceed \$11,000 including travel for *FE* personnel will be reimbursed by the City at cost. Per Diem charges will be in accordance with the effective U.S. General Services Administration rate schedule.

The table on the following page reflects the labor costs and payment milestones per task.

<b>El Paso County Sheriff's Office Labor Cost per Task</b>		
<b>Task</b>	<b>Milestones</b>	<b>Proposed Labor Cost</b>
2.1	Project kickoff meeting and project planning	\$5,240
2.2	Review and analyze radio system documentation and FCC licenses	\$8,040
2.3	Evaluation of existing system	\$7,560
2.4	Conceptual design	\$14,800
2.5	Draft assessment report	\$15,880
2.6	Final assessment report and presentation	\$9,040
<b>Total</b>		<b>\$60,560</b>

## 6.0 ASSUMPTIONS AND CONSTRAINTS

1. Federal Engineering, Inc. will perform all of the tasks as called out in Section 2 (excluding optional tasks or services). The deletion of a task or significant change in scope of one or more tasks may affect the overall price. Any optional or additional tasking will be authorized by mutual agreement of the SO and **FE** and this SOW will be amended accordingly.
2. This SOW assumes that the SO's project manager will schedule meetings, provide meeting facilities, notify attendees, and arrange for on-site visits.
3. **FE's** ability to fulfill this project depends, in part, on the willingness and ability of the SO and/or other participating jurisdictions and agencies, equipment vendors, service providers, third parties, and others to provide information in a timely manner, and upon the accuracy of the information as supplied. The accuracy of input data, whether provided in electronic or hard copy form, and the recommendations, actions, system designs, procurements, and bidder actions resulting therefrom cannot, therefore, be warranted by **FE** nor can the performance, suitability, or reliability of said systems be warranted by **FE**.
4. This SOW assumes an estimated 14-week schedule to complete the program beginning April 30, 2012, with the last milestone completed on or before August 3, 2012. Delays to the program schedule due to actions or lack of actions on the part of the SO and/or other participating jurisdictions and agencies, equipment

vendors, service providers, third parties, and others, as well as vendor protests and other procurement related actions, may result in additional costs and will be brought to the attention of the SO project manager in a timely manner.

Submitted by *FE*:

Ronald F. Bosco

Ronald F. Bosco, President  
May 7, 2012

Authorization to begin work by:  
**El Paso County Sheriff's Office**

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Printed name and title)

\_\_\_\_\_  
(Date)

**Attachment 1**

**Project Schedule**

**(Microsoft Project® Schedule)**

**To be provided following project initiation meeting**





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Engineering®

**Federal Engineering, Inc.**

10600 Arrowhead Drive  
Fairfax, VA 22030  
703-359-8200

STATEMENT OF WORK (SOW)

Issued: April 13, 2012

Revised: May 7, 2012

AMENDMENT TO CITY OF EL PASO, TX

Contract for

El Paso Metropolitan Statistical Area Communications System

Dated: August 9, 2011

**PROJECT EL-PSMR-FSA  
CITY OF EL PASO, TEXAS**

**AUTOMATED DISPATCH AND FIRE STATION  
ALERTING SYSTEM EVALUATION**

**1.0 INTRODUCTION AND ISSUES**

Federal Engineering, Inc. (**FE**) recently completed an evaluation of the City of El Paso's (City) existing and proposed Motorola systems and provided recommendations for future phases of the El Paso Metropolitan Statistical Area Communications System (EPMSACS). The City has requested **FE** to evaluate an automated dispatch and fire station alerting (FSA) system that will be controlled at the City's Public Safety Answering Point (PSAP) and provide dispatchers an advanced application to control emergency voice and data communications to the City's fire and EMS departments.

**2.0 TASKS TO BE PERFORMED**

**2.1 Task 1: Project Kickoff Meeting and Project Planning**

Due to the short timeline to complete this task, upon receipt of the formal Notice to Proceed from the City, **FE** will prepare a project plan and schedule, plus obtain information and commence evaluation of the City-designated automated dispatch and FSA system.

The project kick-off meeting between **FE** and the City will be conducted by teleconference. This initial meeting will establish a common understanding of the project goals, objectives, and schedule, plus provide participants a preliminary description of the automated dispatch and FSA system under evaluation. **FE** will deliver a revised project plan and timetable following this meeting.

## **2.2 Task 2: Evaluation of the Automated Dispatch and FSA System**

*FE* will analyze and document information on the City-designated automated dispatch and FSA system offered from Locution Systems, Inc. The evaluation will consist of the following elements:

- a. Description of system architecture, functions, and features, including comparison to the existing FSA system
  - Central controller (at dispatch center) and remote terminals (at fire stations)
  - 800 MHz radio system interfaces for control and communications
  - Suite of fire station alerting and automated dispatch technologies
  - Computer Aided Dispatch (CAD) system interface
  - Other Internet Protocol (IP) or analog interfaces
  - Voice vs. data functions
  - Optional functions and features including:
    - Station status
    - Selection of tones and standard voice alerts
    - Acknowledgement of alerts
    - AC power failure
    - Monitoring of doors and security detection features
    - Control of lights and other electrical/gas appliances
    - Smoke Alarm
- b. Operational analysis, including allocation of system and user functions
  - Dispatcher functions, responsibilities, and interfaces
  - Fire station operator functions, responsibilities, and interfaces
  - Timing of alerts, messages, and responses
  - System configuration and zoning of alerts for groups of stations

*FE* will present to the City in briefing format the findings of the evaluation. The findings will serve as the basis for the approval by the City of the automated dispatch and FSA system requirements and strategy for procurement and implementation.

## **2.3 Task 3: Automated Dispatch and FSA System Requirements and Vendor Quote**

*FE* will document the City's automated dispatch and FSA system requirements and request a proposal and price quote from Locution Systems.

### 3.0 DELIVERABLES/MILESTONES

*FE* and the City will discuss a mutually acceptable date for project initiation (notice to proceed) and adjust the estimated schedule below accordingly.

Milestones/Deliverables	Estimated Dates (Business days)
Obtain system information; conduct preliminary analysis; conduct project kickoff meeting	10 days from notice to proceed
Deliver updated project schedule	5 days after project kickoff meeting
Present findings of the automated dispatch and FSA system evaluation	15 days after project plan update delivered
Deliver automated dispatch and FSA system requirements document and vendor proposal/quote	10 days from City's approval of findings

### 4.0 STAFFING/ORGANIZATION

*FE* proposes Mr. Rajit Jhaver as the Project Manager. He will draw upon the project expertise and skills of other *FE* public safety radio consulting professionals during the course of the project as needed.

### 5.0 COST

The fixed price for direct labor to perform the services in this scope of work is \$11,200. Reimbursable expenses not exceed \$5,500 including travel for *FE* personnel will be reimbursed by the City at cost. Per Diem charges will be in accordance with the effective U.S. General Services Administration rate schedule.

The following table reflects the labor costs and payment milestones.

Milestones	Proposed Labor Cost
Present findings of the automated dispatch and FSA system evaluation	\$8,850
Deliver automated dispatch and FSA system requirements document and vendor proposal/quote	\$2,350
<b>Total</b>	<b>\$11,200</b>

## 6.0 ASSUMPTIONS AND CONSTRAINTS

1. Federal Engineering, Inc. will perform all of the tasks as called out in Section 2 (excluding optional tasks or services). The deletion of a task or significant change in scope of one or more tasks may affect the overall price. Any optional or additional tasking will be authorized by mutual agreement of the City and **FE** and this SOW will be amended accordingly.
2. This SOW assumes that the City's project manager will schedule meetings, provide meeting facilities, notify attendees, and arrange for on-site visits.
3. **FE's** ability to fulfill this project depends, in part, on the willingness and ability of the City and/or other participating jurisdictions and agencies, equipment vendors, service providers, third parties, and others to provide information in a timely manner, and upon the accuracy of the information as supplied. The accuracy of input data, whether provided in electronic or hard copy form, and the recommendations, actions, system designs, procurements, and bidder actions resulting therefrom cannot, therefore, be warranted by **FE** nor can the performance, suitability, or reliability of said systems be warranted by **FE**.
4. This SOW assumes an estimated 8-week schedule to complete the program. Delays to the program schedule due to actions or lack of actions on the part of the City and/or other participating jurisdictions and agencies, equipment vendors, service providers, third parties, and others, as well as vendor protests and other procurement related actions, may result in additional costs and will be brought to the attention of the City project manager in a timely manner.

---

Submitted by **FE**:

*Ronald F. Bosco*

Ronald F. Bosco, President  
May 7, 2012

Authorization to begin work by:  
**City of El Paso, Texas**

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Printed name and title)

\_\_\_\_\_  
(Date)



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10600 Arrowhead Drive  
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**STATEMENT OF WORK (SOW)**

Issued: April 20, 2012

Revised: May 7, 2012

GSA Contract Number: GS-35F-0159Y

Effective: 1/23/2012 through 1/22/2017

**PROJECT EL-PSMR-OTS  
CITY OF EL PASO, TEXAS  
RADIO SYSTEM ON-CALL TECHNICAL SUPPORT**

**1.0 INTRODUCTION AND ISSUES**

Federal Engineering, Inc. (**FE**) recently completed an evaluation of the City of El Paso's (City) existing and proposed Motorola systems and provided recommendations for future phases of the El Paso Metropolitan Statistical Area Communications System (EPMSACS). In addition, the City is planning other task orders associated with radio system procurement and implementation support and the Sheriff's Office VHF radio system. The City recognizes that other tasks related to the radio system may arise from time to time beyond those tasks described in existing task orders. Since these efforts will typically be for a short duration, or will need to be performed on a quick reaction basis, the City requires a task order to provide general public safety consulting support on a time and materials (T&M) basis as tasked by the Public Safety Technology Manager.

This Statement of Work (SOW) provides a framework for **FE** to respond to ad-hoc, short-term assignments regarding the City's public safety mobile radio system project. Through this SOW, the City of is provided with the mechanism to direct **FE** consulting efforts in an orderly fashion while maintaining control and visibility.

**2.0 TASKS TO BE PERFORMED**

An assignment within this task may be initiated by email or written correspondence between **FE** and the Public Safety Technology Manager.

**2.1** Assignments within this task may consist of any of the following:

- **FE** may provide technical assistance to the Public Safety Technology Manager or other regional stakeholders.
- **FE** may conduct system capacity analysis or improvement studies (such as for large capacity events for at the Sun Bowl)

- **FE** may conduct site analysis and radio system analysis.
- **FE** may offer informal advice or conduct technical research.
- **FE** may assist in administrative issues such as FCC license modifications or renewals.
- **FE** may interface with City management and radio systems users.
- **FE** may generate RFP's and review proposals from vendors.
- **FE** may conduct meetings with vendors and assist the City in contract negotiations.
- **FE** may perform program planning and design reviews.
- **FE** may perform analyses of radio operations and system/technology utilization and develop improvement recommendations
- **FE** may conduct special presentations on select subjects.
- **FE** may provide support in areas such as operations, engineering, or administration for public safety mobile radio services.
- **FE** may perform other tasks as directed by the Public Safety Technology Manager.

**2.2** Milestones and deliverables within this task may consist of any of the following:

- **FE** may conduct program review meetings or technical seminars.
- **FE** may conduct oral presentations on requested subjects.
- **FE** may generate program plans using Microsoft Project and other software.
- **FE** may generate brief memoranda, reports, or white papers on findings.
- **FE** may participation at meetings to support findings or to discuss assignments.

### **3.0 SCHEDULE**

This task will begin upon execution of this SOW and remain active through December 31, 2013.

### **4.0 STAFFING/ORGANIZATION**

The **FE** Project Manager and project specialists will be designated upon initiation of each assignment. Mr. Rajit Jhaver will serve as the **FE** point of contact.

### **5.0 COST**

Assignments will be performed on a time and materials basis in accordance with the rates provided in Schedule A of this SOW. The funding for this SOW shall not to exceed \$20,000 unless mutually agreed to by the City and **FE** via a SOW amendment.

Upon receiving an assignment, **FE** will respond to the Public Safety Technology Manager via email with an estimated cost to perform the assignment. Upon receipt and written acceptance of the estimated cost and a Notice to Proceed, **FE** will commence

the assignment. During the assignment, if situations arise that cause a change in the estimated cost, **FE** will notify the Public Safety Technology Manager of the revised estimate and the reason for the change.

Invoices will be submitted monthly. The invoices will detail each task assignment, the personnel assigned, the number of hours charged, and details regarding travel and other direct costs. All invoices will be submitted to the Public Safety Technology Manager for processing.

## 6.0 ASSUMPTIONS AND CONSTRAINTS

1. **FE** professionals will be directed by the Public Safety Technology Manager or designee according to the assignments to be performed. The scheduling of **FE** resources will be mutually agreed upon based upon the needs of the City and the availability of the specific **FE** consultants.
2. **FE** will deliver its documents electronically via email attachments and/or CDROM in MS Office. **FE** can also deliver documentation in hard copy format should City require.
3. The **FE** professionals' ability to fulfill tasks depends heavily upon the directions given by the Public Safety Technology Manager. In addition, the **FE** professionals' ability to fulfill task depends on the willingness and ability of City, equipment vendors, service providers, third parties, and others to provide information in a timely manner, and upon the accuracy of the information as supplied. The accuracy of input data, whether provided in electronic or hard copy form, and the recommendations, actions, system designs, and procurements derived therefrom cannot, therefore, be warranted by **FE** nor can the performance, suitability, or reliability of said systems be warranted by **FE**.

---

Submitted by **FE**:

*Ronald F. Bosco*

Ronald F. Bosco, President  
May 7, 2012

Authorization to begin work by:  
City of El Paso

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Printed name and title)

\_\_\_\_\_  
(Date)

## Schedule A

### FEDERAL ENGINEERING LONG-TERM CONSULTING RATES

Effective January 1, 2012 through December 31, 2012

Project Labor Category	GSA Labor Category	Project Rate
Director	Director/Chief Consultant	\$135.00
Chief Consultant & P25 Expert	Senior Subject Matter Expert II	\$135.00
Program Manager	Project Manager	\$135.00
Project Manager	Project Manager	\$135.00
Technical Lead	Senior Communication Systems Engineer	\$130.00
Land Mobile Radio Specialist & P25 Technical Support	Senior Radio Engineer (RF Eng. II)	\$130.00
Senior Consultant	Senior Systems Engineer II	\$130.00
RF Coverage Specialist	Systems Engineer I	\$110.00
Consultant	Systems Engineer I	\$110.00
Technical Writer	Analyst	\$ 75.00
Analyst	Analyst	\$ 75.00

The above rates are Federal Engineering staff off-site labor rates. Rates for any subcontractors or affiliates may be different and will be submitted to the City for approval.

#### TERMS AND CONDITIONS

1. Long-term rates do not include state or local taxes.
2. Subcontracts, travel, meals on a per diem cost basis, and other direct non-labor charges will be invoiced at actual cost.
3. Invoices will be rendered monthly. All invoices are due and payable 30 days from issuance.
4. Prompt Payment Discount: 0.5% - 15 days from receipt of invoice or date of acceptance, whichever is later.
5. Late balances are subject to a finance charge of 1.5 percent per month (or fraction thereof).

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